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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/871,408	05/31/2001	Izhak Baharav	10003977-1	9280

7590 09/09/2005

AGILENT TECHNOLOGIES, INC.
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EXAMINER	
WU, JINGGE	

ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/871,408	BAHARAV ET AL.	
	Examiner	Art Unit	
	Jingge Wu	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-3, 6, 8-16, 19, 21-26, 28-33* is/are rejected.

7)☐ Claim(s) *4,5,7,17,18,20 and 27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on February 16th, 2005 has been entered. Applicants' amendment, filed on June 10, 2005 has been entered and made of record. An action on the RCE follows.

Remarks

Applicant's arguments with respect to claims 1-33 have been fully considered, but they are not persuasive.

a. Applicant argues (regarding to arguments A, C, and F) that Herley does not **inherently** disclose "demosaicing operator incorporating a frequency-based transformation operator to take into account a subsequent frequency-based compression process", and Herley merely sets forth the desired effect of color interpolation, which can be achieved by the compression, as set forth and asserted by Herley, the mention of "DCT coefficient" in the reference passage of Herley does not relate to a demosaicing or interpolating processes and is presumably directed to compression and decompression. (highlight by the Examiner). Also, the color interpolation process of Herley is not a claimed "processing said mosaiced image using a demosaicing operator incorporating a frequency-based transformation operator.."

Examiner respectively disagrees. In response to applicant's argument, Examiner would like to point out that claim language is given its broadest reasonable interpretation. First, demosaicing is equivalent to the color interpolation disclosed in Herley, which is one method of demosaicing method (see, also in the specification of the instant application, i.e., "[t]he interpolation-based demosaicing methods use simple interpolation formulas to interpolate the color planes seperatly." (page 2 lines 8-19). In addition, Herley expressly mentions "We would like to color interpolate the image **so that** DCT coefficient is closes to an integer times stepsize for that coefficient...," the requirement of interpolation (demosaicing), "DCT coefficiens of the image should equal quantizer reconstruction levels." and "...will settle for approximately satisfying the first" (i.e. DCT coefficients requirement) (col. 5 lines 1-11). This teaching is read on the claimed language because the color interpolation (demosaicing) of Herley must satisfy the DCT coefficient requirement or, another words, the DCT operation (frequency – based transform) is incorporated in the color interpolation process , thus, **inherently** (because the DCT process), incorporated a DCT operator to **take into account** a subsequent frequency based compression process. (emphasis by the Examiner). Finally, regarding how the Applicant's "frequency-based transformation operator" is, from the specification, it is a "compression-considered demosaicing matrix" which defines the constraints of color interpolation, which is similar to the Herley's DCT coefficients requirement.

Therefore, Herley clearly discloses all limitations of broadly claimed language.

b. Applicant further argues (regarding to argument B) that color transform is performed after demosaicing an image in Herley, thus, Herley does not includes a demosaicing operator includes a color space conversion operator.

Examiner respectively disagrees. There is no where Applicant, himself, discloses that demosaicing and color space converting perform in same time. Thus, color conversion first, and then demosaicing can be certainly be viewed as a one includes another. "Include" is a set concept (only one is in or out of a group) and there is no which one first or second relationship claimed.

Therefore, Herley clearly teach the limitation of "**includes** a color space conversion operator". (emphasis by the Examiner)

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 9, 11-16, 23-26, 30, 32-33 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5838818 to Herley (a reference of PTO-1449).

As to claim 1, Herley discloses a method of demosaicing a mosaiced image comprising:

receiving said mosaiced image, said mosaiced image being representation of a scene of interest (fig. 6, 610 and 620, col. 1 lines 11-15, and col. 5 lines 49-50, note that the scene of interest is inherent because of digital camera); and

processing said mosaiced image using a demosaicing operator on blocks of said mosaiced image to derive a representation of demosaiced image (col. 3 line 66- col. 4 line 37), said demosaicing operator incorporating a frequency based transformation (DCT) operator to take into account a subsequent frequency-based compression process (col. 4 line 65-col. 5 line 30, see remark above).

As to claims 2-3, Harley further discloses the demosaicing operator uses a color space operator for converting an original color space RGB to a different color space (YCrCb) (col. 3 lines 9-10 and line 49).

As claim 9, Harley further discloses DCT transformation (col. 3 line 42).

As to claims 11-12, Harley further discloses the representation of said demosiaced image includes a plurality of image pixel values (fig. 3) and a plurality of transformed coefficients matrices (col. 4 lines 2-38, col. 5 lines 3-30, note that DCT transform is inherently used matrices).

As to claim 13, Harley discloses limitations of receiving mosaiced image and demosaiceing the image (see discussion in claim 1) and compressing the representation of the demosaised image using a frequency-based compression scheme (JPEQ) (fig. 5-6col. 5 lines 31-62).

As to claims 14-15, the discussions are addressed with regard to claims 2-3.

As to claims 16 and 23, the discussions are addressed with regard to claims 11-12.

As to claim 21, the discussions are addressed with regard to claim 9.

AS to claims 24-26, 30, 32-33, the claims are corresponding apparatus claims to claims 1-3, 9, 11-12.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6, 8, 19, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harley in view of US 6731794 to Zhang et al.

As to claims 6, 8, 19, and 28, Harley does not mention the demosaicing operator is derived by defining the transformation-related coefficients as having a predefined probability distribution such as normal distribution.

Zhang, in an analogous environment, discloses that the demosaicing operator is derived by defining the transformation-related coefficients as having a predefined probability distribution such as normal distribution (col. 6 lines 8-27).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the scheme of Zhang in the method of Harley in order to reduce the artifacts in the demosaiced image (Zhang, col. 2 lines 27-50).

Claims 10, 22, 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harley in view of WO 01/26359 to Tao (a reference of PTO 1449).

As to claims 10, 22, and 31, Harley does not explicitly mention wavelet transform.

Tao, in an analogous environment, further discloses wavelet transform (abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the scheme of Tao in the method of Harley in order to obtain efficient compression and reduce the artifacts (page 2 line 5-10 and page 11, line 10).

As to clam 29, Harley does not mention embodied IC for demosaicing and compressing.

Examiner takes Official Notice that the feature is notoriously well known in the art.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the special embodied IC in the apparatus of Harley in order to obtain efficient computation so as to increase the speed of processing.

Allowable Subject Matter

Claims 4-5, 7, 17, 18, 20, 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information

Any inquiry concerning this communication or earlier communications should be directed to Jingge Wu whose telephone number is (571) 272-7429. He can normally be reached Monday through Thursday from 8:00 am to 4:30 pm. The examiner can be also reached on second alternate Fridays.

Any inquiry of a general nature or relating to the status of this application should be directed to TC customer service whose telephone number is (571) 272-2600.

The Working Group Fax number is (571) 273-8300.

Jingge Wu

Primary Patent Examiner